

and

control means, responsive to the detecting means, for controlling the operation of the matching circuit, the phasing circuit and the switch means to adjust the properties of the multifilar antenna to suit better a current signal to be received or transmitted.

REMARKS

Firstly, Applicants wish to point out that there are currently 22 claims pending in this application, not 20 claims as indicated on page 1 of the Office Action. It will be noted that the Preliminary Amendment dated August 16 2000 requested cancellation of claim 23 only.

In paragraph 1 of the Office Action, the Examiner has objected that dependent claim 7 "recites phrases which are enclosed in parentheses". Applicant has requested correction of claim 7 to remove the parentheses from the claim. Applicant respectfully submits that this correction overcomes the objection set forth in paragraph 1 of the Office Action.

In paragraph 3 of the Office Action, claims 3,6,7,12,14,15 and 18 to 20 stand rejected under 35 USC 112, second paragraph as being allegedly indefinite.

Dependent claim 3 stands rejected because there is allegedly "no antecedent basis for "the control means". In Applicants' submission, independent claim 1, from which claim 3 depends, does provide clear antecedent basis for "the control means". More specifically, claim 1 recites, at line 11, "control means, responsive to the detecting means..."

Dependent claims 6 to 9 stand rejected because there is allegedly "no antecedent basis for "the detecting means" and "the control means".

Again, in Applicants' submission, independent claim 1 from which claims 6 to 9 depend, does provide clear antecedent basis for "the detecting means" and "the control means". More specifically, independent claim 1 recites, at line 7, "detecting means operable to detect..." and recites, at line 11, "control means, responsive to the detecting means..."

Dependent claim 12 stands rejected because "the preamble contains the phrase "each feed network" while there is only a single feed network in the independent claim". Applicants respectfully submit that, in fact, dependent claim 12 of the subject application does not recite the phrase "each feed network" - claim 12 actually recites "the combining means...", nor does independent claim 1 recite "a single feed network", as stated by the Examiner.

Dependent claims 14 and 15 stand rejected "because the meaning of the limitation "n" is allegedly not clear". In response, Applicants have requested that the phrase "n spaced filaments" in claim 1, at line 2 (and also in independent claim 22) be replaced by the phrase "a number of spaced filaments" and that the phrase "in which n" in claims 14 and 15, lines 1, be replaced by the phrase "in which said number". Applicants respectfully submit that these amendments overcome the rejection of claims 14 and 15 under 35 USC 112, second paragraph.

In regard to the rejection of claim 18, Applicants have requested that the word "substantially" be substituted for the word "generally", as proposed by the Examiner.

Claims 19 - 20 stand rejected because there is allegedly "no antecedent basis for "weighting circuit". "In Applicants' submission, independent claim 1, from which claims 19 and 20 depend, does provide clear antecedent basis for "weighting circuit". More specifically, claim 1 recites, at line 5, "a weighting circuit operable..."

In view of the foregoing remarks, Applicants respectfully submit that the rejection of

claims 3, 6 to 9, 12,14,15 and 18 to 20 under 35 USC 112, second paragraph has been transversed.

In paragraph 5 of the Office Action, claims 6 to 11, 13 and 18 stand rejected under 35 USC 112, first paragraph.

Claims 6 to 11 and 13 stand rejected because allegedly “a detection means as recited is not sufficiently described in the specification”.

In Applicants’ submission “a detection means” is sufficiently described. More specifically, there is described at page 7, lines 7 to 13, with reference to Figure 3, “a digital signal processing (DSP) unit 470 which...~~detects~~ and optimises the selected parameter such as signal-to-noise ratio”, and the passage at page 3, lines 5 to 7 makes clear that the parameter could be signal to noise ratio (claim 6), signal to noise plus interference ratio (claim 7), received signal level (claim 8) or VSWR (claim 9). In regard to dependent claim 10, there is clearly described at page 7, lines 7 to 13 with reference to Figure 3, a detecting means comprising analogue to digital conversion means in the form of A/D converters 430, “a memory” in the form of RAM 440 and “combining means” and “detecting means” in the form of DSP 470 (see particularly, page 7, lines 7 to 10).

In regard to dependent claim 11, there is described at page 7, line 22 through page 8, line 13, with reference to Figure 4, a detecting means comprising “means for combining” in the form of combiner 240', “analogue to digital conversion means” in the form of A/D converters 430', “a memory” in the form of RAM 440' and “means for detecting” in the form of DSP 440'.

Furthermore, there is also described at page 5, lines 19 to 23 with reference to Figure 2 “a sensor 280 that examines the signal (e.g. the level of signal to (noise plus interference) ratio”.

In regard to dependent claim 13, “detecting means” of the form defined in this claim are described, inter alia, at page 7, lines 14 to 17 of the specification.

Claims 10 and 11 also stand rejected because allegedly the description does not sufficiently describe “memory and A/D conversion”. Again, in Applicants’ submission, these features are sufficiently described. As already explained, the passages at page 7, lines 7 to 13 and at page 7, line 22 through page 8, line 13 describe, with reference to Figures 3 and 4 respectively, “memory” (i.e. RAM 440,440') and A/D conversion (i.e. A/D converters 430,430').

Claim 18 stands rejected because allegedly “the recited cross-sectional shape is not described in the specification”. In Applicants’ submission, the features of claim 18 are sufficiently described. More specifically, the passage at page 5, lines 4 and 5 of the specification states that “other volute shapes such as those having elliptical or rectangular plans are also suitable for use in the present invention”.

In view of the foregoing remarks, Applicants respectfully submit that the rejection of claims 6 to 11, 13 and 18 under 35 USC 112, first paragraph has been transversed.

In paragraphs 6 and 7 of the Office Action, claims 1,12 and 16 to 17 stand rejected under 35 USC 102(b) as being allegedly anticipated by US Patent No. 5,828,348 (Tassoudji).

In Applicants’ submission amended claims 1 to 22 of the subject application are clearly and patentably distinguished from this citation.

In paragraph 7 of the Office Action, the Examiner refers to Figure 13 of the citation stating that this Figure discloses:

“a dual band octifilar helical antenna with four radiators at a first frequency

(1304) and four interleaved radiators at a second frequency (104) on a substrate (108) with a feed network as recited (900 and 1100).”

However, independent claim 1 does not, with respect, recite these features - more specifically, claim 1 does not recite two sets of interleaved radiators at first and second frequencies on a substrate.

However, in contrast to the citation, claim 1 does require that the multifilar antenna is “an adaptive multifilar antenna” (emphasis added), and calls, inter alia, for:

“detecting means operable to detect at least one electrical property of the multifilar antenna...

and control means, responsive to the detecting means, operable to control operation of the weighting circuit to adjust the properties of the multifilar antenna...”

Applicants’ cannot, with respect, find any disclosure, or even a suggestion, of these claimed features in Tassoudji. The claimed “detecting means” and “control means” give the multifilar antenna of the subject invention the claimed “adaptive” function. In contrast, the antenna described in Tassoudji is a fixed fed antenna in which each quadrifilar element is parasitically coupled to another element, and that has no adaptive processing capability whatsoever.

Therefore, in Applicants submission, independent claim 1 (and independent claim 22) and all the dependent claims are both novel and inventive over Tassoudji.

Claims 2 to 11, 13 to 15 and 18 to 20 stand rejected under 35 USC 103(a). These claims all depend from independent claim 1 and so, for the reasons already given, they are also clearly and patentably distinguished from Tassoudji.

Furthermore, Applicants respectfully submit that:

Claim 2 relates to “the weighting circuit” defined in independent claim 1 - it does not, with respect, define “a microstrip substrate” referred to by the Examiner.

In regard to dependent claim 3, reference 1404 in Figure 14 of the citation is simply a transmission line segment transformer (see col 10, lines 40-53) - it is not, with respect, a “control means, responsive to detecting means...” as recited in the claims of the subject application.

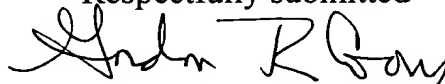
Reference 308 in Figure 22 of the citation is a feed network - it does not appear to have any switching capability as defined in dependent claims 4 and 5 of the subject application, and

Figure 23 of the citation simply shows an antenna feed structure - it does not, with respect, appear to disclose any form of detection circuitry as defined in the claims of the subject application.

In view of the foregoing Applicants respectfully submit that amended claims 1 to 22 are clearly and patentably distinguished from Tassoudji, that the rejections under 35 USC 102 and 103(a) are transversed and that these claims should now be allowed.

An early and favourable examination is respectfully requested.

Respectfully submitted

A handwritten signature in black ink, appearing to read "Gordon R Coons", is written over the typed name.

Gordon R Coons No. 20821

One of the Attorneys for Applicant(s)

LEYDIG, VOIT & MAYER, LTD.

Two Prudential Plaza, Suite 4900

180 North Stetson

Chicago, Illinois 60601-6780

(312) 616-5600 (telephone)

(312) 616-5700 (facsimile)

Dated:

In re Appln. of Saunders et al.
Application No. 09/662,382

CERTIFICATE OF MAILING

I hereby certify that this AMENDMENT (along with any documents referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231.

Date: 8/8/01

Andor R. Gane